THE PEARSON DIGITAL ENTERPRISE SERIES FROM THOMAS ERL

"....a comprehensive, easy to understand perspective that is grounded in practical ways to get a head in this complex area."

—**Matt Armstrong-Barnes,**
Chief Technologist,
Hewlett Packard Enterprise

"...solid and comprehensive overview of the Why, How, and What, striking a perfect balance between the human, technical, and data aspects."

—**Coen de Bruijn,**
Program Director Data & Analytics, Nike;
author of *Key Performance Illusions*

A Field Guide to Digital Transformation

Co-authored and Edited by Best-Selling Author Thomas Erl
Co-authored by Roger Stoffers

FREE SAMPLE CHAPTER

SHARE WITH OTHERS

Advance Praise for *A Field Guide to Digital Transformation*

"By far the most thorough and well-structured guide to digital transformation I have come across. It's an invaluable resource to businesses at all stages of the process, providing insight into digitalization and working with data in a clear and engaging way."

—Jiri Kobelka, CEO, Tatum

"This book explains, in simple language and with an abundance of examples, what digital transformation is all about. The reader is taken through a journey supported by a rock-solid technology and business content, while also learning about the risks and benefits. A must read."

—Gabriele Rossi, Enterprise Architect, ABN Amro Bank

"This book is like a good architecture: It explains a really complex subject like Digital Transformation in plain English! It does this by discussing the constituent parts and how these parts interact and strengthen each other. All this is supported by beautiful, easy to understand graphics. This book helps a lot in navigating where you stand as a company in your Digital Transformation. Thomas and Roger, job well done!"

—Brian Lokhorst, Lead Architect SOA Competence Center,
Dutch Tax and Customs Organisation

"This is the book that needs to be read by anyone that wants to understand where contemporary business and technology are going."

—Eric Barceló Monroy, Head of Technology Architecture Consulting,
Entra a la Gran Nube, SA de CV

"In this book the authors pulled off a small miracle—to demystify 'digital transformation' and make it tangible and understandable—as it's so much more than technology, it's about people, culture, data and putting customers into the center of the game."

—Clemens Utschig, CTO Boehringer Ingelheim

"Organizations struggle implementing digital transformation initiatives successfully. A Field Guide to Digital Transformation *is a perfect recipe and a reference model to guide teams on concepts, technologies and solutions to deliver digital transformation efforts in a standard and more effective way."*

—Ramesh Aki, Staff VP – Digital Platforms and Engineering, Anthem, Inc.

"This book holds precious information to any IT enterprise organization that is going through a digital transformation program. The book covers organizational aspects, mindset and process changes, and platform technologies that are part of a digital transformation move. Well-crafted language and graphics make the book easy to read and the ideas easy to understand. The description of digital transformation strategies and technologies points out the benefits but also includes a forthright discussion of risks and challenges. As a technology person, in particular I saw great value in learning about the importance of customer centricity and how to realize it through different nuances of warm customer relationships."

—Paulo Merson, Brazilian Federal Court of Accounts,
Carnegie Mellon University, University of Brasília

"The knowledge in this book creeps up on the reader who is transformed from wondering what is this new digital world to actually understanding its purpose, its promise and actually how it all works."

—Dennis E. Wisnosky, Founder the Wizdom Companies,
CTO-CA (ret), DoD Business Mission Area

"A great book for both the newbie as well as the veteran to Digital Transformation. The authors give a solid and comprehensive overview of the Why, How and What, striking a perfect balance between the human, technical and data aspects behind one of the most important business trends of the last decades."

—Coen de Bruijn, Program Director Data & Analytics, Nike
(and Author of "Key Performance Illusions")

"The understanding of digital transformation and its true purpose and impact is a must-know for everyone; as we are in it together. This book will be relevant for many years to come while the IT industry keeps moving faster, yet attention to fundamentals can get lost. The book provides a balanced approach to both fundamental drivers as well as gently introducing supporting technology areas for project completion, and that is done gently without getting the reader lost with buzz words. It offers easy-to-understand terminology while real-life example solutions provide a good understanding of what matters to achieve the results. A must-read book for everyone, period."

—Samuel Rostam, Technical Advisor & Adjunct Professor,
New York Institute of Technology

"This book does a great job in making a broad and fluffy subject tangible. It presents a well-structured and comprehensive breakdown of digital transformation, and uses attractive, supporting visuals to help you understand relationships. Recommended for practical professionals that want to get a good overview of digital transformation aspects without spending days on theory and/or use cases."

—Jeroen van Disseldorp, CEO, Axual

"This book is very descriptive of digital transformation and its technologies. Truly educational and applicable to any organization."

—Khalid Saad, Advisor, Infrastructure Planning, Abu Dhabi Digital Authority

"Digital Transformation can be ambiguous and can mean different things to different people. The authors deliver clear and practical coverage of what Digital Transformation truly is. For when you are ready to plan your Digital Transformation project, this should be the reference book on your desk."

—SunTae Hong, Cloudist

"What is Digital Transformation and what are its critical success factors? Why Now? What is Customer Data Intelligence? How can Digital Transformation Solutions enable Intelligent Decision Making and what are the Digital Transformation Science and Automation Technologies?

The authors do an excellent job providing the answers and offering insights into everyday problems one encounters when embarking on digital transformation. In a clear and easy-to-understand manner the authors cover complex topics, illustrated by numerous well-designed examples and diagrams. I recommend this book to any digital transformation practitioner."

—Alex Chizhevsky, PhD., Head of Integration and
Data Architecture Practice, Financial Industry

"If you want to get more insight in the digital part of digital transformation, this is definitely the book to start with."

—Mark Cloesmeijer, Co-Founder, Precedence

"This book provides clear insight into all aspects that play a role in creating a successful digital transformation roadmap. It's up to the individual organization to filter out and combine what is applicable to their situation. This book provides a great starting point for your transformational journey."

—Hans Tesselaar, Executive Director, Banking Industry Architecture Network (BIAN)

"Knowing where to start and what it takes is one of an organisation's most significant challenges when embarking on its transformation journey. Erl & Stoffers take a topic so mysterious and complex and drill down to its essential essence. A Field Guide to Digital Transformation *is the guidebook, for every enterprise leader whose organisation is already on or about to start its digital transformation, on how to retool and re-define an enterprise to achieve true digital success fundamentally."*

—Simon Farrugia, Owner and Business & IT Transformation Specialist at BluBox BV

"Getting Digital Transformation right is critical; getting it wrong can be fatal. A Field Guide to Digital Transformation is a comprehensive, easy to understand perspective that is grounded in practical ways to get ahead in this complex area."

—Matt Armstrong-Barnes, Chief Technologist, Hewlett Packard Enterprise

"This book describes common drivers as well as goals and benefits of Digital Transformation so that the reader can understand why Digital Transformation is required. Using customer-centricity, the authors further elaborate on which key technological approaches can be applied to further such a complex business transformation. The book is concluded with a practical case study describing a part of a contemporary transformation."

—Michel Ruijterman, CIO and Director ITC, de Volksbank

"Very well written, easy-to-read guide with a clear explanation of the key building blocks required in every digital transformation."

—Edwin van Gorp, Chief Architect, Corbexx

"For any firm, achieving true digital transformation to become a differentiator in its industry is quite difficult. This new book on digital transformation is an excellent overview and first step towards this journey. It gives an executive level overview of the essential technologies, the processes one should follow to start that journey. This book also advises on how a firm must rethink its existing business models, deal with the changes, and retrain its employees for new skills with nice illustrations."

—Thirumurthi Ranganathan, MBA (a lifelong learner and senior architect with 20+ years of IT Architecture experience with 12 years in FinTech)

"A should-read book on managing technology business change for managers, executives, and strategists. I strongly recommend this book to anyone interested in the theory and practice of business change and transforming business using emerging technologies. The book provides a holistic and concise description of digital transformation; what it is, what is consists of in terms of terminology and technology, and how to use data and decision insight to drive transformation in action. The book uses well defined concepts to help the reader to capture what digital transformation is all about; from the early motivation and definition, to how it is done in action with examples.

With this book you will find easy-to-understand symbols and icons that illustrates for the reader the key concepts. The book is well structured in two parts; first the foundation part, and then next a practice part that puts attention to data and decision management in online solutions, shifting the mindset from product-centricity to customer-centricity. The authors show the importance of connecting business with processes, technology and data to construct the future operations. Through clear, engaging explanations to help the reader to establish the new processes."

—Morten R Stender, PhD, Partner of Staun&Stender

"Valuable insights in the organizational impact of disruptive technologies"

—Ir. Art Ligthart, CDT of Y. Digital BV

This page intentionally left blank

A Field Guide to Digital Transformation

This page intentionally left blank

A Field Guide to Digital Transformation

Thomas Erl
Roger Stoffers

Cover photo by Thomas Erl; chapter and part opening photos by Nikolas Erl.

For information about buying this title in bulk quantities, or for special sales opportunities (which may include electronic versions; custom cover designs; and content particular to your business, training goals, marketing focus, or branding interests), please contact our corporate sales department at corpsales@pearsoned.com or (800) 382-3419.

For government sales inquiries, please contact governmentsales@pearsoned.com.

For questions about sales outside the U.S., please contact intlcs@pearson.com.

Visit us on the web: informit.com/

Library of Congress Number: 2021947092

ISBN-13: 978-0-13-757184-0
ISBN-10: 0-13-757184-4

ScoutAutomatedPrintCode

Editor-in-Chief
Mark Taub

Executive Editor
Nancy Davis

Managing Editor
Sandra Schroeder

Senior Project Editor
Lori Lyons

Design/Composition
Kim Scott/Bumpy Design

Copy Editor
María Pareni Barceló Nieves

Indexer
James Minkin

Proofreader
Williams Woods Publishing Services, LLC

Cover Design
Thomas Erl

Graphics
Kamilla Bieska

Photos
Nikolas Erl

Cover Composition
Chuti Prasertsith

Educational Content Development
Arcitura Education Inc.

To Zuzana, Nikolas and Markus.
Thank you for continually transforming my life.
—Thomas Erl

I would like to dedicate this book to my wife Veronique,
and my children Niels and Nina for their continued support
throughout the authoring and reviewing process,
as it has kept me away from them for significant periods of time.

Also I would like to extend a big thank you to
my family and my friends who still seem to remember me
after emerging from the "book mode."
—Roger Stoffers

This page intentionally left blank

Contents at a Glance

This page intentionally left blank

Contents

This page intentionally left blank

Acknowledgments

In alphabetical order by last name:

- Ramesh Aki, Staff VP – Digital Platforms and Engineering, Anthem, Inc.
- Matt Armstrong-Barnes, Chief Technologist, Hewlett Packard Enterprise
- Coen de Bruijn, Program Director Data & Analytics, Nike (and Author of "Key Performance Illusions")
- Alex Chizhevsky, PhD., Head of Integration and Data Architecture Practice, Financial Industry
- Mark Cloesmeijer, Co-Founder, Precedence
- Andre Dieball, Director Technical Customer Success DACH
- Jeroen van Disseldorp, CEO, Axual
- Simon Farrugia, Owner and Business & IT Transformation Specialist at BluBox BV
- Edwin van Gorp, Leading Architects
- SunTae Hong, Cloudist
- Jiri Kobelka, CEO, Tatum
- Michael Lambert, Director of Platform Strategy and Application Portfolio Management, Ally
- Art Ligthart, CDT of Y. Digital BV
- Brian Lokhorst, Lead Architect SOA Competence Center, Dutch Tax and Customs Organisation
- Paulo Merson, Brazilian Federal Court of Accounts, Carnegie Mellon University, University of Brasília
- Jan-Willem Middelburg, Managing Director, Cybiant Asia Sdn. Bhd.
- Eric Barceló Monroy, Head of Technology Architecture Consulting, Entra a la Gran Nube, SA de CV
- Amin Naserpour, Founder of TEAM Scorecard

- Thirumurthi Ranganathan, MBA
- Gabriele Rossi, Enterprise Architect, ABN Amro Bank
- Samuel Rostam, Technical Advisor & Adjunct Professor, New York Institute of Technology
- Michel Ruijterman, CIO and Director ITC, de Volksbank
- Khalid Saad, Advisor, Infrastructure Planning, Abu Dhabi Digital Authority
- Morten Stender, PhD, Partner of Staun&Stender
- Hans Tesselaar, Executive Director, Banking Industry Architecture Network (BIAN)
- Dennis E. Wisnosky, Founder the Wizdom Companies, CTO-CA (ret), DoD Business Mission Area

A special thanks to Clemens Utschig (CTO of Boehringer Ingelheim) for his detailed and thoughtful input throughout the authoring process.

Register Your Book

Register your copy of *A Field Guide to Digital Transformation* at informit.com for convenient access to downloads, updates, and corrections as they become available. To start the registration process, go to informit.com/register and log in or create an account. Enter the product ISBN **9780137571840** and click Submit. Once the process is complete, you will find any available bonus content under "Registered Products" for an Access Bonus Content link next to this product, and follow that link to access any available bonus materials. If you would like to be notified of exclusive offers on new editions and updates, please check the box to receive email from us.

This page intentionally left blank

About This Book

The purpose of this book is to provide easy-to-understand, plain English coverage of digital transformation and its commonly associated technologies. This preface briefly describes how the chapters in the book are organized, what topics are and are not covered, and an important color convention used in the many diagrams throughout all chapters.

How This Book is Organized

This book is organized into two parts:

- *Part I: Digital Transformation Fundamentals*
- *Part II: Digital Transformation in Practice*

Part I provides simple and clear coverage of basic and essential digital transformation topics. The chapters in this part were deliberately authored with *minimal references to technologies* so that they can be fully understood by both technically and non-technically inclined readers.

Part I contains a set of short chapters that cover the following:

- What is Digital Transformation? (*Chapter 1: Understanding Digital Transformation*)
- What Led to Digital Transformation? (*Chapter 2: Common Business Drivers*)
- What Enables Digital Transformation? (*Chapter 3: Common Technology Drivers*)
- Why Undergo a Digital Transformation? (*Chapter 4: Common Benefits and Goals*
- What Are the Pitfalls of Digital Transformation? (*Chapter 5: Common Risks and Challenges*)

…and Part I continues with three further chapters that establish some basic terms and concepts vital to digital transformation:

- *Chapter 6: Realizing Customer-Centricity*
- *Chapter 7: Data Intelligence Basics*
- *Chapter 8: Intelligent Decision-Making*

The chapters in Part II are focused on describing digital transformation in action. *These chapters are technical, although all coverage of technologies is introductory.*

Part II contains the following four chapters:

- *Chapter 9: Understanding Digital Transformation Solutions*
- *Chapter 10: An Introduction to Digital Transformation Automation Technologies*
- *Chapter 11: An Introduction to Digital Transformation Data Science Technologies*
- *Chapter 12: Inside a Customer-Centric Solution*

While Chapter 9 provides a brief overview of what comprises a digital transformation solution, the next two chapters dive into the primary associated technologies. These chapters provide introductory coverage of each technology individually and also explain how each relates to digital transformation as a whole.

Chapter 12, the final chapter is this book, builds upon and brings together all preceding chapters by providing a detailed, step-by-step exploration of a sample business scenario, as carried out by a customer-centric digital transformation solution.

What This Book Covers

This book provides clear coverage of:

- what digital transformation is and how and when it is applied
- how and why digital transformation emerged
- the business goals and benefits realized by successful digital transformation
- the challenges and risks associated with digital transformation
- the relationship of digital transformation and customer-centricity
- the role and importance of data and data intelligence
- the role and importance of manual and automated decision-making
- primary automation technologies used in digital transformation solutions
- primary data science technologies used in digital transformation solutions
- how a digital transformation solution works
- how a digital transformation solution collects data and uses data intelligence
- how customer-centricity is realized in the real world

What This Book Does Not Cover

While the book does reference and touch on several of the following topics, it does not provide any detailed coverage of:

- digital transformation security considerations
- digital transformation planning guidelines
- how digital transformation impacts an organization's structure and culture
- managing and governing digital transformations
- implementation of automation and data science technologies

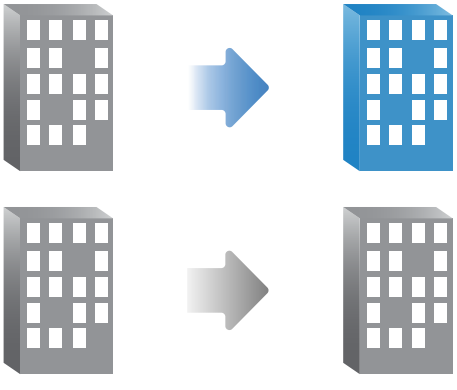
Color Convention

Throughout this book, there are diagrams that depict digital transformation solutions, as well as organizations that are undergoing digital transformation. To better distinguish these parts of the diagrams, a specific blue color is used for associated symbols, as shown in Figure A.

Figure A
The blue color shown is used for symbols that represent participants in digital transformation. This can include organizations, solutions, humans, technologies, products, etc.

Furthermore, transition arrows are often used to show how scenarios progress or to compare "before" and "after" type scenarios, as shown in Figure B.

Figure B
If the "after" scenario demonstrates the application of digital transformation, then a blue transition arrow is used (top). If the diagram depicts a transition that does not involve digital transformation, then a grey arrow is used instead (bottom).



NOTE

Often a distinction is made between digital transformation and *digital optimization*. The latter term can be used when the goal is primarily to improve existing business operations, products and services. When a business intends to digitally *transform*, the goal is often to also introduce new models into the business and launch new products and services. For the sake of simplicity, only the term digital transformation is used in this book.

Introducing "CC," your Field Guide

As explained and demonstrated throughout this book, customer-centricity is at the heart of digital transformation. Improving how organizations make and maintain positive customer connections is often a primary motivation behind investing in digital transformations.

A part of realizing customer-centricity is making the customer experience as warm and accessible as possible. To put this into practice, this book introduces a character named "CC" who acts as your friendly guide to the field of digital transformation (Figure C). "CC" will appear periodically to highlight and summarize key topics.

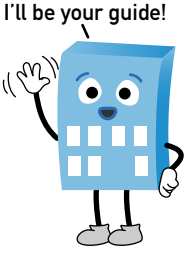


Figure C
"CC" will provide some helpful guidance along your journey into digital transformation.

Chapter 4

Common Benefits and Goals (Why Undergo a Digital Transformation?)

Enhanced Business Alignment

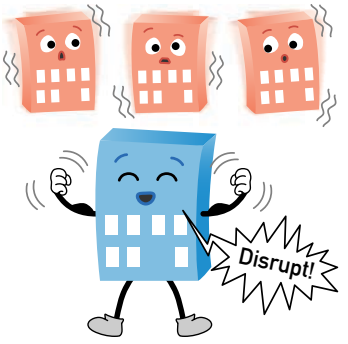
Enhanced Automation and Productivity

Enhanced Data Intelligence and Decision-Making

Improved Customer Experience and Customer Confidence

Improved Organizational Agility

Improved Ability to Attain Market Growth



Now comes the fun part. We get to learn about the many positive things a digital transformation can bring. Organizations undergoing digital transformation often look forward to "shaking things up" in their markets and communities.

The best starting point for assessing the value proposition of a digital transformation initiative is to understand the benefits and goals commonly associated with successful digital transformation efforts. These benefits and goals need to be married with the organization's own business goals so as to determine:

- when (or whether) an organization should invest in and commit to digital transformation
- to what extent the organization should carry out digital transformation
- the rate at which the organization should transform

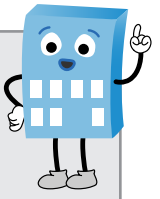
This chapter begins by summarizing the following primary organizational benefits that result from an organization's successful digital business transformation and the corresponding competency it needs to gain in the automation and data science technologies associated with the previously described technology drivers:

- Enhanced Business Alignment
- Enhanced Automation and Productivity
- Enhanced Data Intelligence and Decision-Making

The chapter then continues by explaining the strategic goals that can be attained by applying the enhancements and capabilities the organization gains from the previously described benefits:

- Improved Customer Experience and Customer Confidence
- Improved Organizational Agility
- Improved Ability to Attain Market Growth

TIP
Realizing key benefits is what helps attain key goals.



Digital transformation results in business and technology enhancements that lead to improvements that help attain goals.

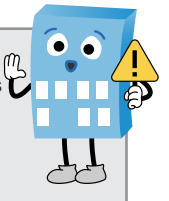
Enhanced Business Alignment

Traditionally, organizations were often structured around business silos based on specific products, services or lines of business.

A digital transformation can introduce the need for:

- previously isolated or separated business departments to collaborate in support of common business goals (Figure 4.1)
- previously separated business and IT departments to collaborate more closely in support of common business goals
- existing business processes and models to be optimized, reengineered and/or further innovated in support of new business goals
- single-purpose business processes previously focused on specific products to be consolidated with others in support of new business goals (Figure 4.2)
- new business processes and models to be introduced and merged with existing business processes and models in support of new business goals (Figures 4.1 and 4.2)

CAUTION
The actual benefits of rethinking and combining business processes will relate directly to the quality of the newly designed business process. The goal is to consolidate and streamline, but there is always the danger of a new workflow becoming overly complex or convoluted.



These business transformations and the resulting cross-departmental collaborations that are formed naturally align the business of an organization with its strategic business goals, several of which may be focused on improving customer-centricity.

This type of business alignment can strengthen an organization culturally, but primarily benefits the organization by establishing a solid foundation upon which automation and data science technology enhancements can be applied. These technologies can be effectively utilized by human workers to enable the organization to realize its business goals to their full potential.

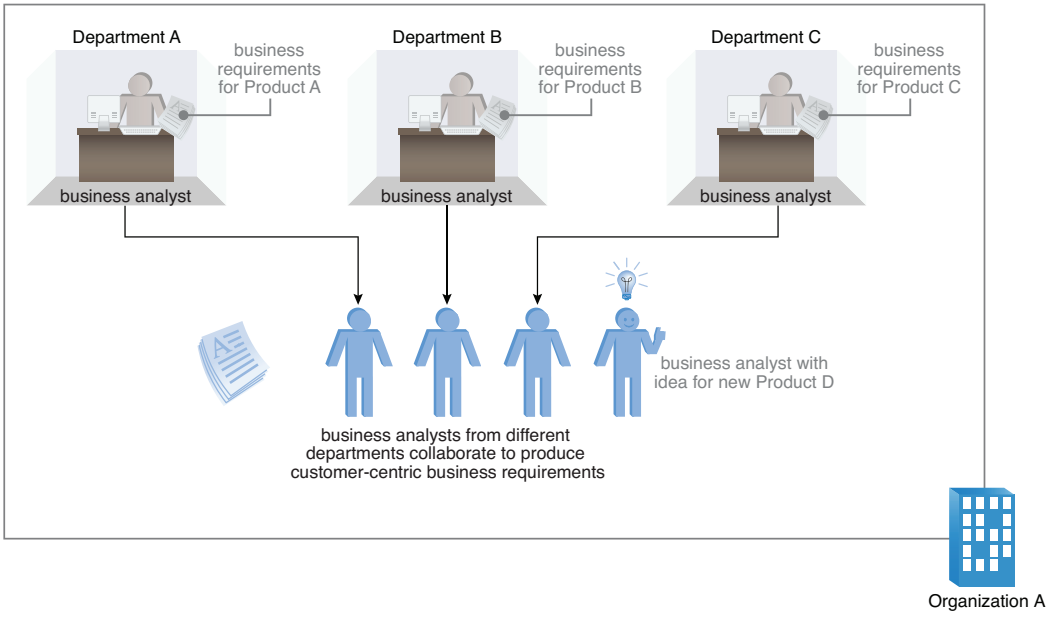


Figure 4.1

A common goal of digital transformation initiatives is to eliminate product "silos" so as to establish an environment that fosters collaboration and alignment across departments. For example, to improve customer-centricity, those groups or departments originally responsible for business analysis as it pertained to individual products, now work together to provide a consolidated customer experience through which all products (and new products) can be explored. New, broader performance and customer success metrics and indicators are commonly established to measure the collective outcome of these types of collaborations instead of measuring only the performance of individual contributions.

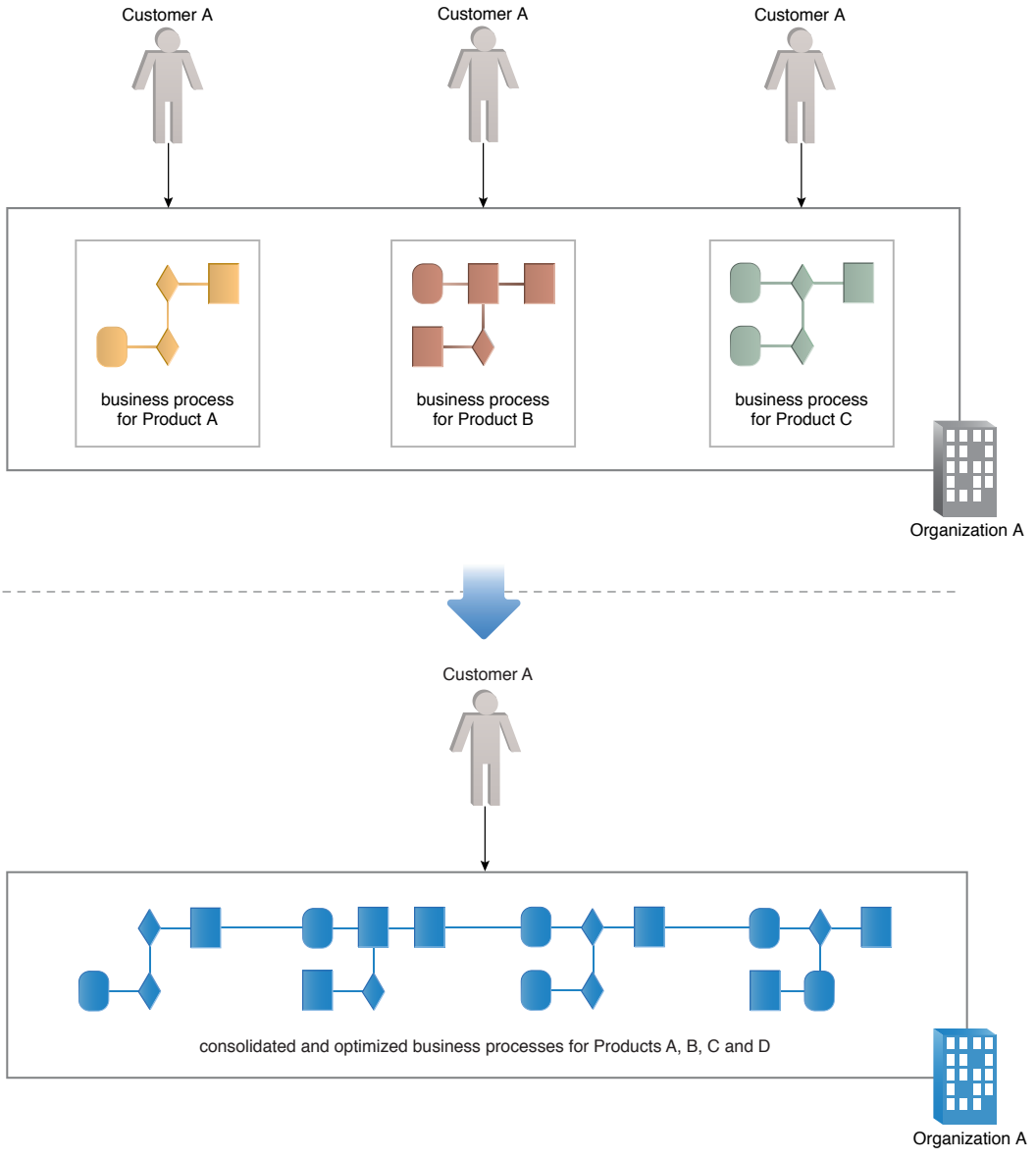


Figure 4.2

Customer A wants to obtain three different products from Organization A. Previously, Customer A had to interact with Organization A via three separate workflows and systems (top), which may have even required the creation of three individual accounts. A transition toward a customer-centric solution results in a consolidated customer experience enabling Customer A to carry out transactions in relation to the three products in a single environment (bottom). Customer A is further able to discover new products while in the consolidated environment.

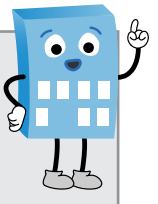
Enhanced Automation and Productivity

An organization undergoing a digital transformation can extend the reach and improve the quality of its automation capabilities significantly. Solutions can be built using combinations of technologies that can enable organizations to automate business tasks so as to boost operational productivity.

For example, automation technologies can:

- automate tasks that previously needed to be performed manually
- automate new tasks in support of new products and services
- automate data collection across environments outside of organization boundaries
- automate actuating tasks in remote devices outside of organization boundaries
- automate tasks at a higher usage capacity than what was previously achievable
- automate tasks more reliably than what was previously possible
- automate decision-making
- improve the security and quality of storage for private, sensitive and important business data

TIP
Introducing new automation will inevitably also impact how business processes and workflows need to be designed.



What is significant about digital transformation environments is how they combine these technologies into distinct platforms that help achieve strategic goals via their collective features (Figure 4.3).

NOTE

Technologies relevant to this benefit are covered in *Chapter 10: An Introduction to Digital Transformation Automation Technologies*.

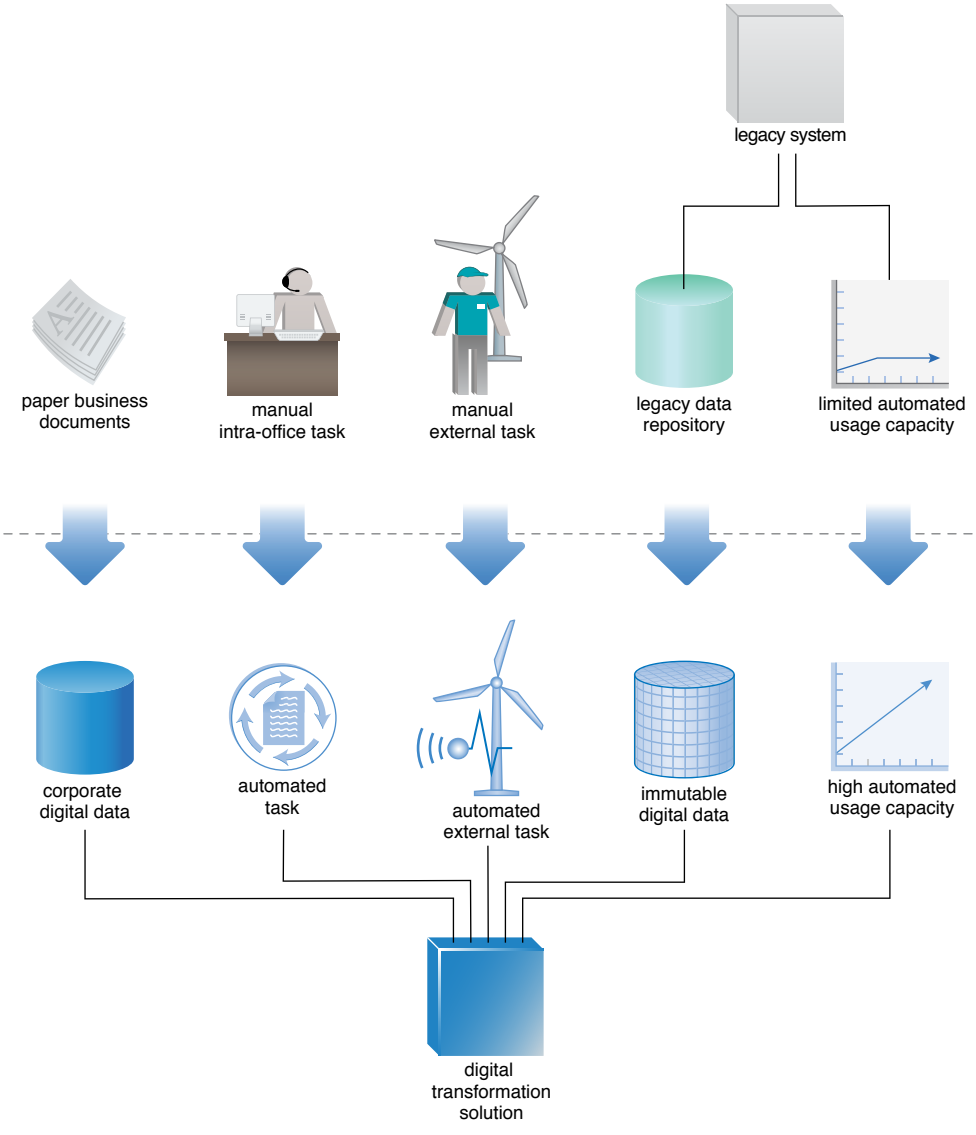
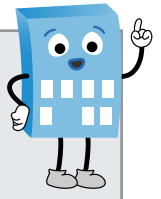


Figure 4.3

The application of digital transformation technology improves the quality and efficiency of a range of operational business tasks.

Enhanced Data Intelligence and Decision-Making

As previously explained, digital transformation solutions can accumulate valuable data intelligence, enabling them to produce deeply insightful analysis results in realtime or near-realtime. This can significantly empower organizations with new insights, new ideas and more decisive and successful decision-making capabilities.



TIP
Much of what constitutes a successful digital transformation relies on the successful attainment of this benefit.

Organizations further have the option to defer some decision-making responsibilities to the underlying digital transformation solutions themselves. When doing so, decisions can be made and executed at the same rate (realtime or near-realtime) as that of the data processing (Figure 4.4).

NOTE

Technologies relevant to this benefit are covered in *Chapter 11: An Introduction to Digital Transformation Data Science Technologies*.

Improved Customer Experience and Customer Confidence

One of the foundational objectives of digital transformation is to foster a shift toward establishing a customer-centric culture, resulting in improved relationships with customers, attracting new customers and supporting all of this via enhanced automation.

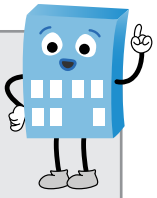
Customer-centric solutions have the potential of capturing the interest and enhancing the satisfaction and confidence of customers.

This brings with it several core benefits, including:

- increasing the speed at which customers are served by reducing the time-to-value of services
- improving the effectiveness with which services are delivered to customers by enhancing their quality

- increasing the "warmth" of the customer experience
- improving customer confidence and loyalty by maintaining on-going relationships with customers beyond individual transactions

Digital transformation solutions aim to achieve these improvements by being designed, from the ground up, with customer-centricity in mind (Figure 4.5), as further explored in *Chapter 6: Realizing Customer-Centricity.*



TIP

When we use the term "customer" we are not just referring to business customers. A customer can be any user, employee or client of an organization, whether the organization is a for-profit business or a non-profit or public organization.

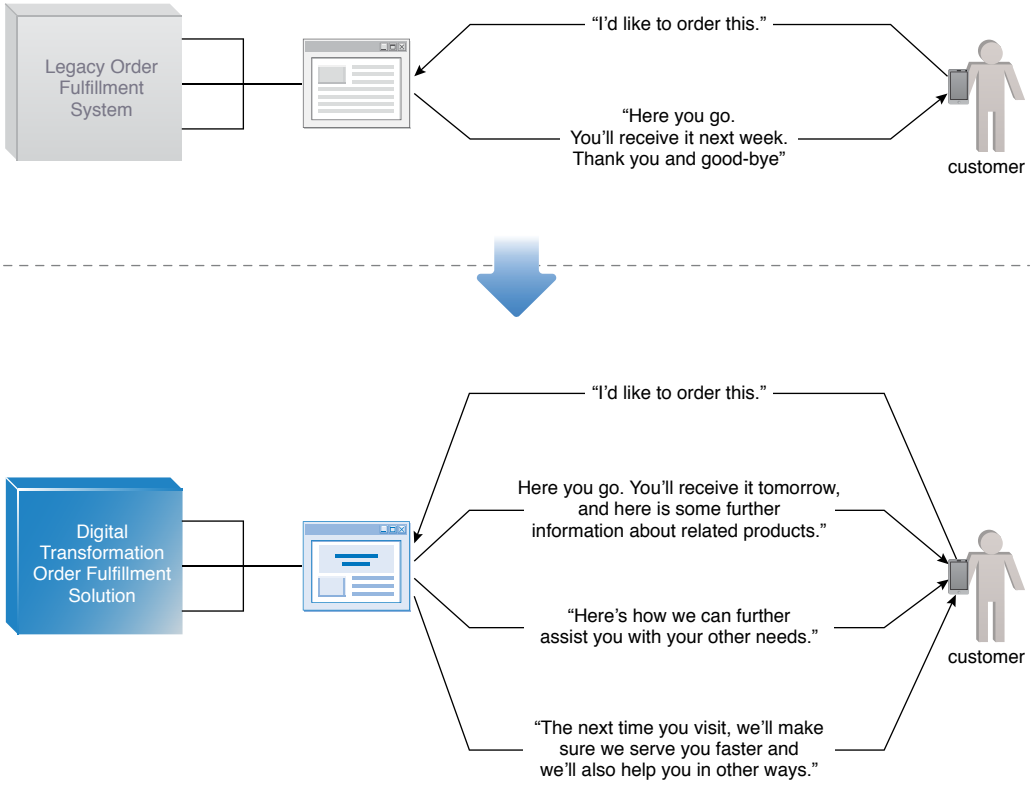


Figure 4.5

Digital transformation solutions are designed to be customer-centric so as to enable customers to interact with an organization in new ways and to make the customers' experiences as positive and effective as possible.

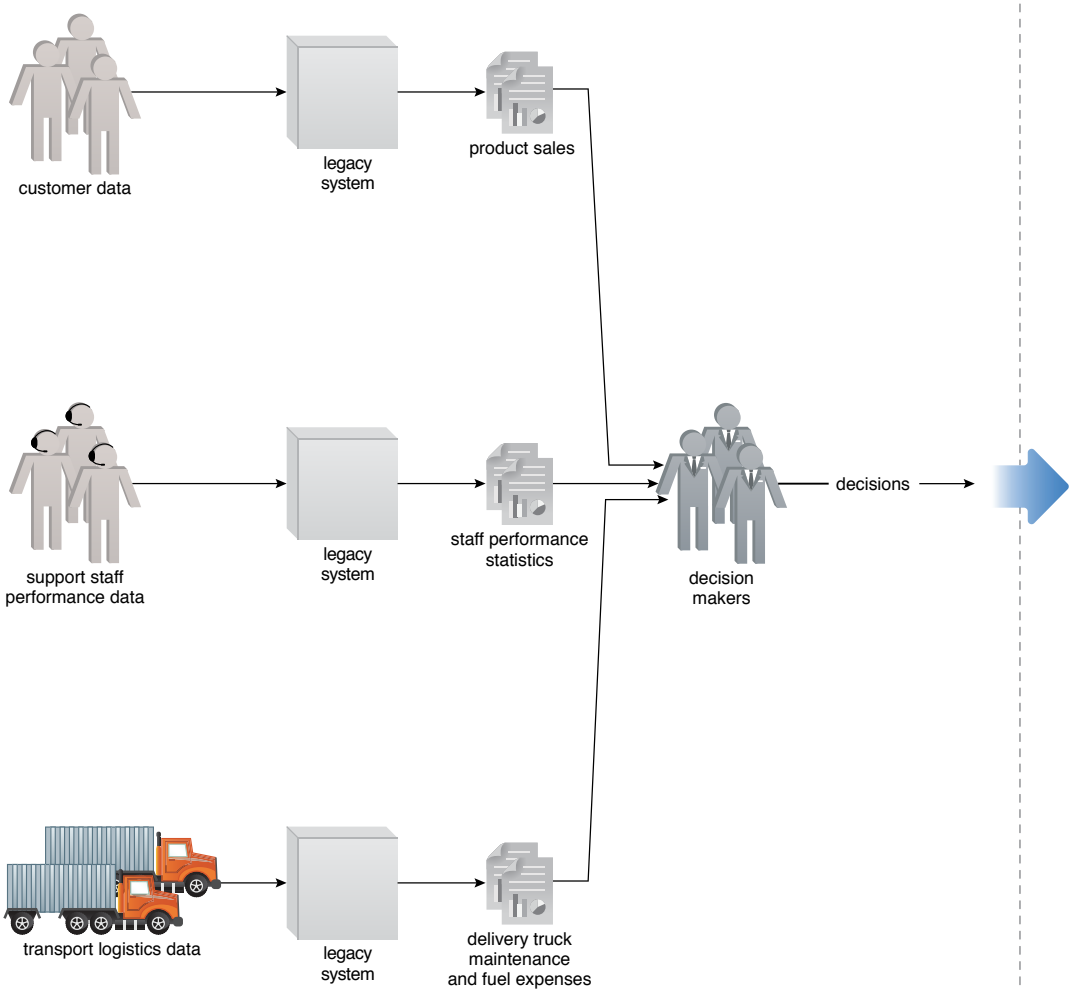


Figure 4.4

Traditional legacy systems produce various independent reports for human decision makers. Digital transformation solutions process and consolidate input data from a range of sources with the aim of producing enhanced reports at a faster rate and with greater data intelligence. The reported data may be provided to human decision makers or to data science systems that can make and act upon decisions autonomously.

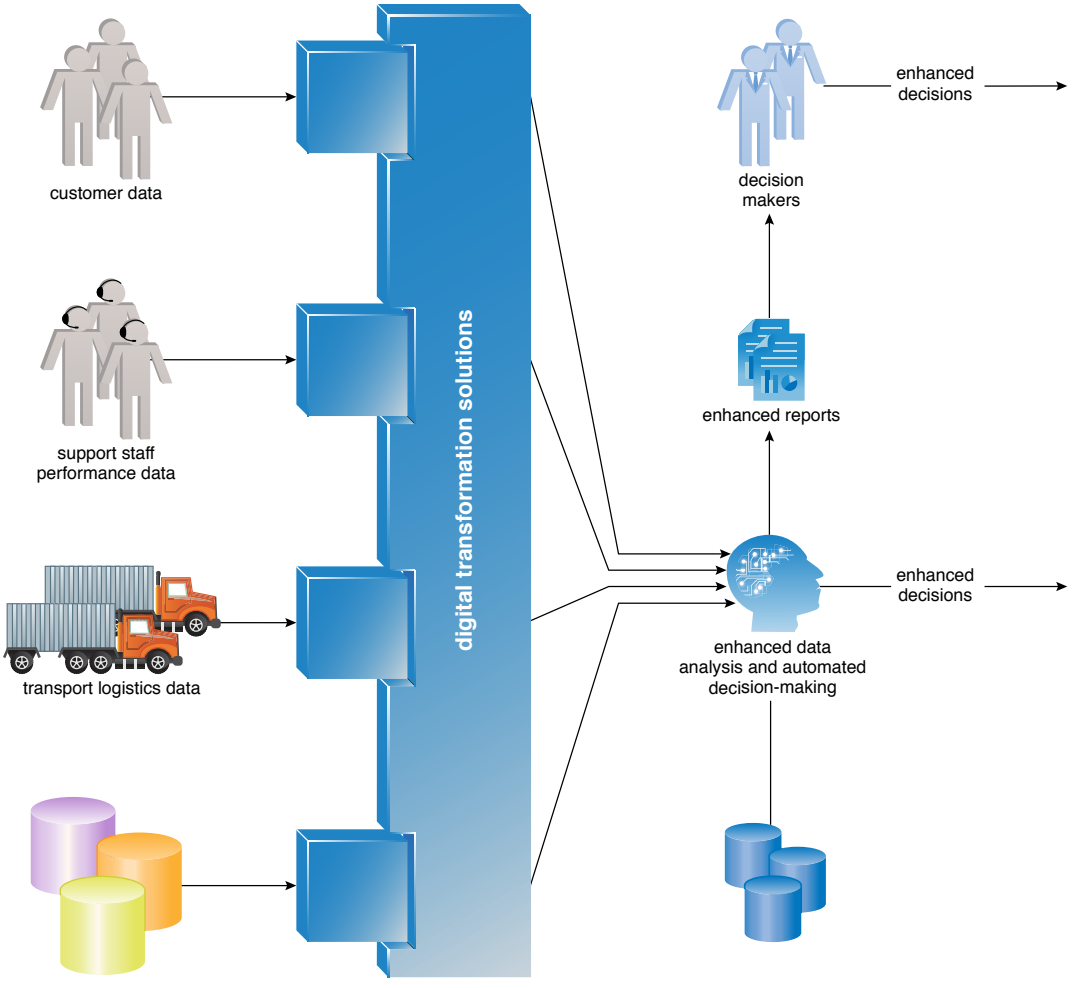


Figure 4.4 (continued)

Improved Organizational Agility

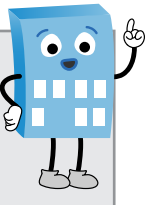
Digital transformation can transform an organization to become more agile in its ability to:

- Adapt to unforeseen business changes, such as new or existing disruptive competitors (that may be introducing new or improved products into a market), internal changes (the resignation of key executives, changes in internal funding, labor unrest), regulatory changes (new taxes, policies and other regulations that affect how a business operates) (Figure 4.6).
- Swiftly introduce new products or services into a market so as to maximize its ability to disrupt an existing marketplace before competitors can adapt and respond.
- Refine and adjust its business processes and models in response to new data intelligence, which the organization will also want to carry out swiftly to maximize potential benefits before competitors can themselves adjust.

This increased level of organizational agility can enable businesses to maneuver in response to planned or unplanned business change, with less impact to its operations and automation solutions.

TIP

Digital transformation solutions are ideally designed to evolve with the organization's business. This means that as the business changes, the underlying automation solutions are updated to enable those changes, preferably with minimal application development impact. To support this, a DevOps approach can be considered, along with technology architecture models that advocate broad standardization, such as SOA.



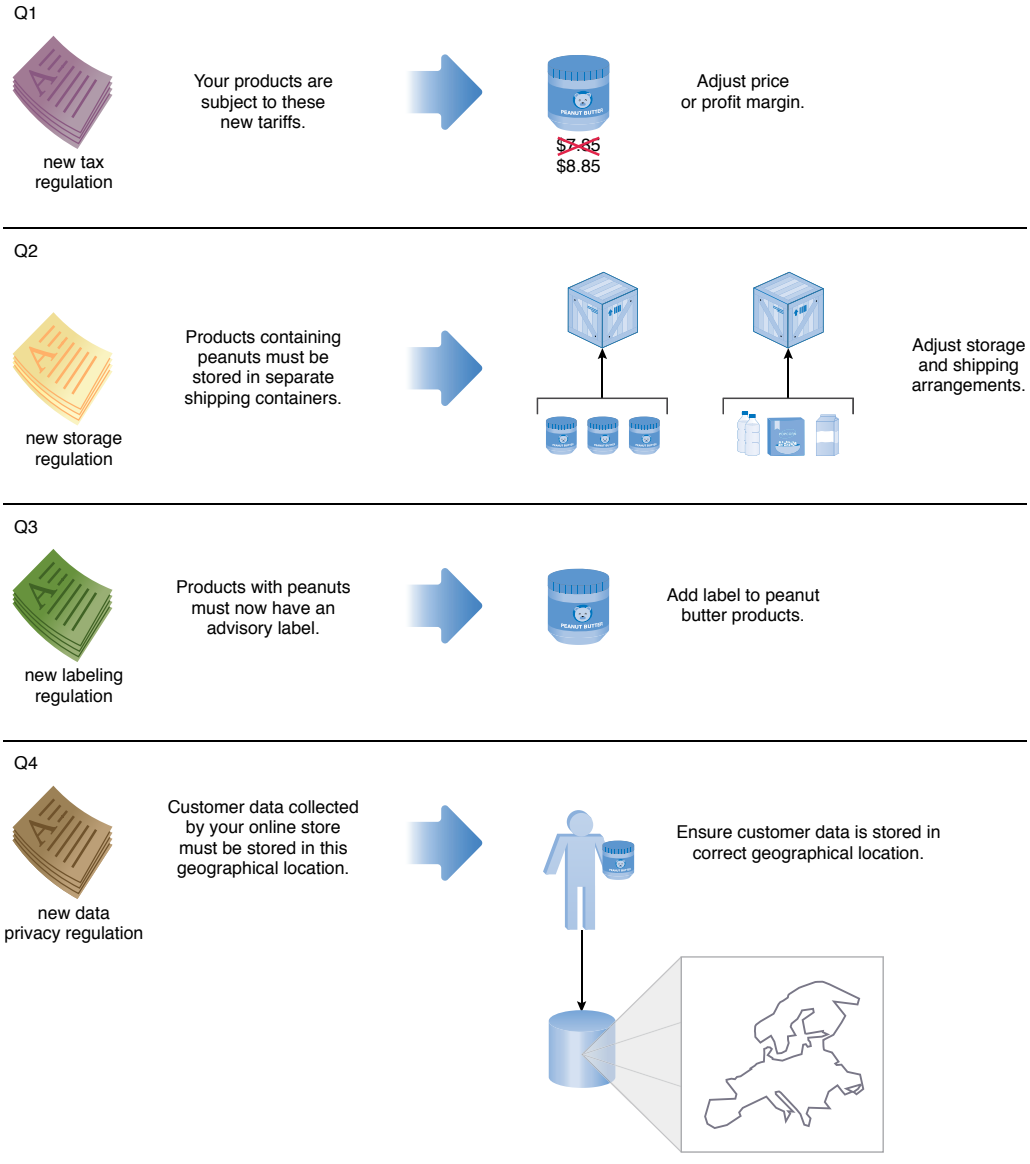


Figure 4.6

Over the course of a year, a business selling food products is required to adapt to a series of regulatory changes that impact some of its products. The improved alignment of its underlying automation systems allows the organization to more efficiently adjust its operations to accommodate such unforeseen changes.

Improved Ability to Attain Market Growth

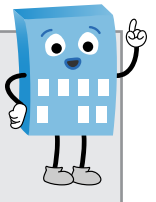
Digital transformation platforms enable an organization to make significant enhancements in how its business currently operates and, often more importantly, to introduce new products and services to disrupt existing markets in pursuit of growth.

This can lead to several avenues for increasing market share and revenue, such as:

- being able to reach a wider range of customers by moving more products and services online
- being able to reach new customers by adding new products and services to their offerings
- being able to increase the frequency of (existing and new) customers returning by improving customer experience

Furthermore, the technologies associated with digital transformation provide many opportunities for underlying automation solutions to become highly optimized, such as:

- optimizing business workflows by improving the quality of automation technology
- optimizing organization-wide workflows by introducing new automation technology in support of cross-departmental collaboration
- carrying out tasks faster and with less overhead by replacing manual labor with automation logic
- carrying out decisions in realtime and with less expense by replacing human decision makers with automated decision logic
- continually improving and refining business operations in response to new digital data intelligence that is collected, analyzed and fed into decision-making responsibilities carried out by humans and machines



TIP
The extent to which an organization can be successfully disruptive is often tied directly to the quality of data intelligence it collects and the resulting quality of decisions made based upon that data intelligence.

By repeatedly building upon these enhancements, organizations can continue to optimize their operations while continuing to increase the scope and revenue potential of their businesses (Figure 4.7).

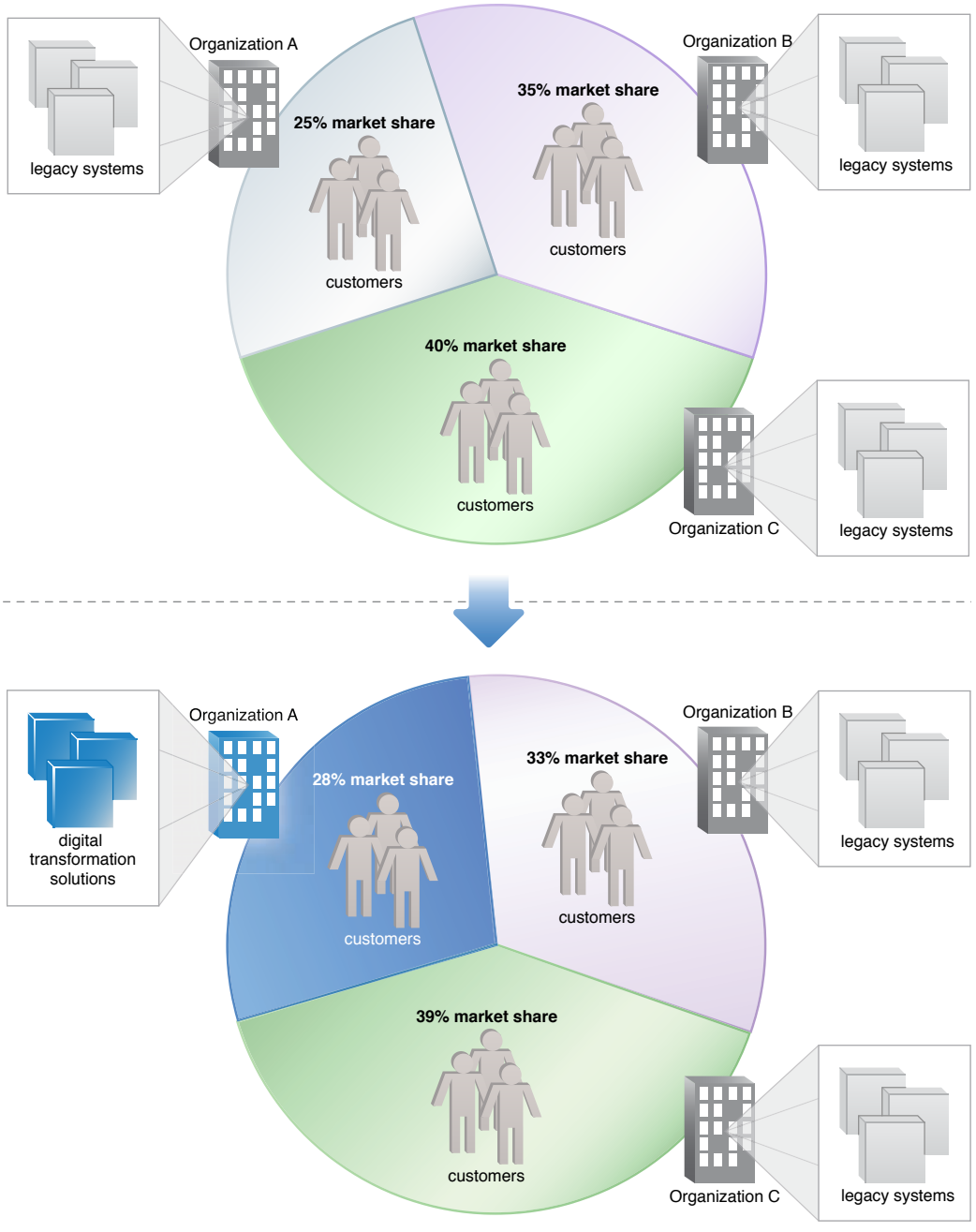


Figure 4.7

Organization A aims to increase its market share by 3% as a result of a successful digital transformation whereby it plans to improve existing services and products and introduce new services and products into the marketplace.

This page intentionally left blank

Index

D

E

F

G

H

I

L

M

N

O

P

U

V

W